

Package ‘convertbonds’

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Type Package

Title Use the Given Parameters to Calculate the European Option Value

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Description Calculate the theoretical value of convertible bonds by given parameters, including B-S theory and Monte Carlo method.

Imports stats

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Encoding UTF-8

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black_schiles	<i>Black Schiles Model function Calculating Function Using the Black-Schiles Option Pricing Model</i>
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Description

Black Schiles Model function Calculating Function Using the Black-Schiles Option Pricing Model

Usage

```
black_schiles(
  mode = 1,
  current_price,
  stock_price,
  conver_price,
  stock_var,
  time,
  interest_rate,
  netdebt_value
)
```

Arguments

mode	Two calculation methods, respectively 1 and 2
current_price	Current price of convertible bonds
stock_price	Positive stock price
conver_price	Conversion price
stock_var	Standard deviation of annualized rate of return for underlying stocks
time	Expiration time (annualized remaining period)
interest_rate	Risk-free continuous compound interest rate
netdebt_value	Pure debt value

Value

Option value per share(numeric)

Examples

```
result<-black_schiles(mode=1,current_price=122.82,
  stock_price=5.9,conver_price=5.43,stock_var=0.2616,time=1.353,
  interest_rate=0.018482, netdebt_value=104.05)
```

monte_carlo	<i>Monte Carlo simulation function Predicting Theoretical Value of Options per Share Using Monte Carlo Simulations</i>
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Description

Monte Carlo simulation function Predicting Theoretical Value of Options per Share Using Monte Carlo Simulations

Usage

```
monte_carlo(I, M, S_0, K, Time, r, sigma)
```

Arguments

I	number of simulation
M	number of time steps
S_0	The initial price of the underlying stock
K	Exercise price (conversion price)
Time	Simulate paths over time intervals
r	risk free rate
sigma	Volatility (Standard Deviation of Return)

Value

No return value, called for side effects

Examples

```
monte_carlo(I=10000, M=50, S_0=5.9, K=5.43, T=1.353, r=0.018482, sigma=0.2616)
```

option_value	<i>Option_value function Calculate the four value comparisons: Option value of convertible bond, Theoretical value of convertible bonds (pure bond value + option value), The difference between the theoretical price of convertible bonds and the current price, The ratio of the difference between the theoretical price of convertible bonds and the current price</i>
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Description

Option_value function Calculate the four value comparisons: Option value of convertible bond, Theoretical value of convertible bonds (pure bond value + option value), The difference between the theoretical price of convertible bonds and the current price, The ratio of the difference between the theoretical price of convertible bonds and the current price

Usage

```
option_value(value_per, current_price, conver_price, netdebt_value)
```

Arguments

value_per	Option value per share(numeric)
current_price	Current price of convertible bonds
conver_price	Conversion price
netdebt_value	Pure debt value

Value

No return value, called for side effects

Examples

```
option_value( value_per=1.02,current_price=122.82,conver_price=5.43,netdebt_value=104.05 )
```

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